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HIERARCHICAL ORGANIZATIONS AND INFORMATION AGE TECHNOLOGIES: A STRATEGIC MISMATCH

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Hierarchical Organizations and Information Age Technologies: A Strategic Mismatch

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ABSTRACT

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This study assumes we have entered a postindustrial period, the Information Age. It examines Industrial Age hierarchical organizational structure to determine if this model remains a viable and relevant organizational framework for the future. It proposes that there is a critical strategic link between organizational structure and information technology enablers. In its conclusion, the study discusses the strategic implications of this structural issue for the Department of Defense, currently a hierarchical bureaucracy seeking to prepare for the twenty-first century.

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Introduction

The next century promises to provide unprecedented opportunities to capitalize on information technology. The interdependence fostered by emerging technology will impact many organizations in their efforts to globalize before they are fully prepared to do so. The Department of Defense, once blessed with relatively unlimited budgets to deter known enemies of the Cold War, now finds itself operating in a very turbulent and uncertain economic and military-political environment. The world is becoming smaller as we become more interconnected. So the Department of Defense has been forced to rethink how its business should be conducted. Several initiatives have precipitated this internal review—notably the National Performance Review introduced by President Clinton on 3 March 1993 and the Defense Reform Initiative of 10 November 1997.

Is the Industrial Age bureaucratic organizational model still viable for the Department of Defense in the Information Age? Is this structure best suited to take full advantage of the new technology enablers of the twenty-first century? Can we really afford to view structure apart from new technology? The answer to all these questions is no. Organizational structure and today's information technology enablers are inextricably linked.

Over the past five years, I have observed and fully analyzed two Defense Agencies struggling to integrate information technology into their organizations and similar organizations. Although the people in the organization remained open and receptive to the new capabilities, a disconnect was nonetheless evident between their bureaucratic structure and the new enablers, thereby thwarting effective integration throughout the organization. The dysfunction between command-and-control hierarchy and the new-found facility to communicate ideas instantaneously quickly became apparent. For example, managers often emphasized face-to-face communications or decried information technology when presented with new opportunities for interconnectedness, such as video teleconferencing and electronic mail. This behavior seemed like a desperate effort to hang on to business-as-usual. In other cases, workers long accustomed to electric typewriters were provided with computers. But they simply used the word-processing function only to type. With little training to do otherwise, they gave no consideration to exploiting the readily available new computer technology.

Hierarchical organizational structure contributes greatly to this problem of transition. In a hierarchy, information technology will not be used effectively to exploit its full potential unless the interconnectivity between systems and people is enhanced. The advantage of being interconnected with systems and people, sharing ideas any time or any place, and with realtime easy access to information, changes the nature of work. Furthermore, it conflicts with the principles of the bureaucratic organizational model under which we have been laboring for several decades.

In November 1997, the Secretary of Defense announced a sweeping program to reform the business of the Department of Defense, from corporate headquarters at the Pentagon to the many support agencies. This Defense Reform Initiative requires the Department of Defense to review its business processes and adopt those business practices that American industry has already successfully used to become leaner and more flexible.[1] This sounds very much like the old adage—do more with less. Unfortunately, this transition is more complex than that. The reform falls short because it overlooks the increasing irrelevance of the Department's Industrial Age organizational structure, which is based on the bureaucratic model. Without a critical assessment of the organizational structure as part of overall reform, the fixes will likely remain inadequate.

Locked into bureaucratic structures and practices, the Department of Defense must initiate a radical structural change—more than new ways of doing old business, like replacing the typewriter with a computer. The question that needs to be asked is what products and services should the defense business provide. Secondly, we must ask whether lower echelon elements should have the flexibility to select the organizational framework that will effectively incorporate the innovations of the Information Age into their activities. These are the strategic issues.

We now need flexible and agile organizations to meet rapidly changing global demands. The future promises to be even more perplexing and unstable. The Department of Defense cannot afford to drag its huge and expensive monolithic structure into the twenty-first century.

Dimensions of a New Age

As the twentieth century comes to a close, it is apparent that a wave of informational changes has already permeated daily life in America. Cellular phones, cable television, beepers, automatic teller machines, copy machines, fax machines, personal computers, and the Internet have triggered information-sharing dynamics. Of all the factors characterizing the dawning of the Information Age, that which appears most personal and most global is the degree to which everyone—and everything—seems to be interconnected.[2]

Is this period in history significantly different from the past? For centuries, distance, time and space significantly inhibited everyone's ability to carry out effective communications. Individuals could communicate by signals or talk directly to each other, but not over any great distances. Even when individuals began to transcend distances to communicate, often this reduction took too much time or was not always possible or was too expensive or was ineffective. From the very earliest times, effective communication was only one of several related concerns.[3] The desire for privacy, security, authenticity, timeliness, and proof of receipt all influenced how, when and where communications were used. So important were these requirements, they often drove the development of information and communications technology.[4]

In the mid-nineteenth century, the first information revolution began and lasted a century. Technologies such as the telegraph, telephone and radio enabled us to overcome distance, time, and location. They changed not only the way that people communicated with each other, but also how they related to one another.[5] In the United States, the telegraph closely paralleled the expansion of the railroad system. It had a major impact on military affairs during the American Civil War. The telegraph also played a significant public policy role in the war efforts of the North and the South by helping the news media keep citizens informed.[6]

The second information revolution extended from the mid-twentieth century until the 1980s; it included the technologies of television, early generation computers, and satellites. These new capabilities linked the world together.[7] As the new technologies spread throughout society, their cultural impacts became increasingly evident. In many homes television became a central focus of family life, altering the way people interacted with one another and how they spent their time.[8] Because of television, men and women saw people and places and heard ideas and viewpoints that they previously did not know even existed.[9] Ironically, when television was in its infancy, few people expected its influence to be so pervasive.[10]

Television added a new dimension, a sense of greater immediacy; satellites extended the global communications infrastructure; and computers provided individuals and organizations with a greater capacity to collect, analyze and use information. These technologies accelerated trends towards globalization, influenced ways that multinational corporations structured themselves, and linked individuals to a growing global cyber-mainstreet that transcended national boundaries.[11]

Since the 1980s, still more information technologies have been developed that now significantly alter politics, economics, sociology, and the culture of knowledge creation and distribution.[12] According to former Secretary of State George Shultz, "Information technology gives the individual enormous personal outreach, expanding to global limits his access to information, ideas and personal services." The evolution of a more complex information and communication environment now creates varying perspectives, simultaneously accessible. Harvard Sociologist Daniel Bell places information at the center of his concept of the post-industrial society. He describes a seismic shift of the economy from goods production to information-based services, with professionals and technicians as the preeminent social class. Knowledge is becoming the trigger of innovation and policymaking, and technology the key to the future.[13]

The passing of the industrial era has brought about a new consciousness, a real difference in individual human imagination. Television, one of the most influential and pervasive technical developments in history, has severely limited the independence and utility of the individual imagination. Television is an overwhelmingly passive experience: "For TV will not rest in its demands on the watcher until the flickering image has amputated and removed the watcher's own imagination and replaced it with the tube's."[14]

Experts argue that the characteristics and uses of information make the role of information technology inherently different from that of other technologies. Today's information technology is interactive and facilitates human cooperation through its ability to collapse time and distance. The ability to substitute generalized tasks for highly specific tasks and the ability to use organizational memory has changed.[15] Information technology is the first "coordinating technology," in contrast to the production technologies that evolved from the Industrial Revolution.[16] In In the Age of the Smart Machine, Zuboff persuasively argues that information technology does not simply automate information handling processes; it also "informates," or generates large quantities of information previously unavailable.[17]

Many draw a clear comparison between the computer and the steam engine. The steam engine triggered a revolution by its broad applicability. "No single-purpose device is going to bring about a revolution, however convenient or useful it may be. Revolutionary significance lies in generality."[18] The computer similarly has the ability to be used for a myriad of tasks. Like the steam engine before it, information technology changed our perception of our relationship to nature. The steam engine and its potential for mass production led us to the specialization of jobs one step removed from the task as a whole.[19] Likewise, information technology continues to further distance us from the physical task of production while reducing our need to specialize. Coordination has been—and continues to be—radically changed by information technology. The steam engine triggered the Industrial Revolution. Similarly, the interconnectedness facilitated by computer networking triggered the Information

Age.[20] This new age offers even more potential in networking beyond the largest and best known network—the Internet. In the United States by 1995, over 40,000 networks were connected; and globally in 1995, a new network joined the Internet every half hour.[21] The extent of the vast networks that are possible in the future is incomprehensible. Their ultimate impact on society is unfathomable.

Foundations of Modern Organizational Structure

The bureaucratic and hierarchical organizational structure, still common today, has deep roots in the Industrial Age. Most modern enterprises of the late 19th century were created because of the need for increased production and stronger economic goals. The railroad is clearly just one example of this desire to increase production and build a strong national economy. With massive infusions of cash required to support construction of trains and tracks, to synchronize activities in different time zones, to carry out simultaneous tasks in multiple places, and to develop technology for rail beds and steam engines, the period's simple business structure was inadequate.[22] To succeed, the nascent railroad system fostered creation of a modern functional corporate structure that featured specialization and division of labor.[23]

This functional structure was rapidly adopted by other industries struggling with similar changes in communications, transportation, and technology. The development of the consumer society after World War I prompted other changes in the corporate model, resulting in the multidivisional firm.[24] As these organizations grew bigger, they also became more hierarchical and bureaucratic. An organizational axiom emerged: bigness begets specialization. Likewise, most corporate leaders assumed the need for rigid control over all the specialized activities of the organization.[25] The command-and-control structure exercised by many modern companies resembled Caesar's leadership of his legions, long considered the birthplace of successful hierarchy.[26] Successive wars reinforced Roman military structure. Likewise, millions of future company men donned uniforms and experienced the complex, layered fighting organizations of World Wars I and II.[27]

Max Weber, a renowned German sociologist, studied the structural characteristics of bureaucratic organizations and analyzed how they influenced the behavior of individuals. He focused on relationships defined by legal authority and hierarchical divisions of labor. He then noted salient characteristics of bureaucracies:

- distribution of regular activities in a fixed way as official duties ordered by laws or administrative regulations;
- levels of graded authority that establish a firmly ordered system of super- and subordination in which there is supervision of lower offices by higher ones;
- office management based on written documents that are preserved.[28]

According to Weber, the purest type of bureaucratic official is one appointed by a superior authority. The official moves from the lower, less important and lower paid position to higher positions and is thereby set for a career.[29] Traditional authority is regarded as legitimate, and office-holding is considered a vocation. The official always strives for and usually enjoys a distinct social esteem as compared to that of the workers. His social position is guaranteed by the prescriptive rules of rank order.[30] The individual bureaucrat serves as a single cog in an ever-moving mechanism which prescribes an essentially fixed route of march. The official is entrusted with specialized tasks only from the top.[31]

Every bureaucracy seeks to increase the superiority of the professionally informed by keeping their knowledge and intentions secret. Information is power. Insofar as it can, it conceals and protects its knowledge and action from criticism.[32]

Bureaucracy's hierarchy is thus a hierarchy of information.[33] Weber's analysis of bureaucracy, first published in 1922, remains the single most influential statement on modern organizations and serves as the point of departure for all further analyses. Drawing upon his studies of ancient bureaucracies, Weber saw the bureaucratic structure as the only viable framework for professional standing armies if their purposes were to conduct warfare.[34] This structure facilitated the full development of military discipline and technical training. He clearly saw the bureaucratic structure as ideally serving government agencies.[35] The bureaucratic organizational model still prevails as the most common model for private and public sector organizations throughout the world.[36]

Organizations, however, have not always focused on mass production. About one hundred years after Adam Smith declared the factory to be the most appropriate means of mass production, Frederick Taylor devised a system of scientific management that became popular in the early 20th century and established the organization of work. He studied various jobs and determined that workers could be more productive if their work was designed scientifically. Probably his most important single concept was that of the task.[37] Each element of work was scientifically determined. Work was planned out by management at least a day in advance, and in most cases each worker received written instructions detailing what to do, how to do it, and the time allotted to complete it. The labor process was thus viewed independent of craft, tradition, and the worker's knowledge. The process depended entirely upon the practices of management, not the abilities of the workers.[38]

This separation of conception from execution was key: Only management developed the science of work, never the workers. Scientific management moved brainwork to the planning department, away from the shop floor. Taylor's methodology was never intended to enhance the ability of the worker, but rather to reduce the cost of work by decreasing required training time and enlarging his output.[39] He clearly focused on management's ability to reduce waste and improve operational output—in short, he advocated efficiency. Frederick Taylor thus offered scientific management as a way for firms to increase profits, get rid of unions, and raise productivity so that the broader society could enter a new era based on higher consumption of mass-produced goods.[40]

As bureaucracy and scientific management were being ensconced as the dominant organizational model of the twentieth century, Mary Parker Follett advocated a more participatory style of management. She argued that firms could be more effective if they emphasize power-with rather than power-over, "Authority should go with knowledge and experience."[41] She advocated a form of organization where authority would derive from three things—knowledge, experience, and the skill to apply that knowledge and experience.[42] Her theories were antithetical to standard organizations, wherein authority is based primarily on hierarchical positions that separate people generally into two classes, those who command and those who obey.[43]

Follett's model contrasted sharply with Weber's organizational analysis. In "The Giving of Orders," she argued, first of all, that orders should not be legitimized merely on the basis of positional authority. In most organizations, she laments, there is a class system defined by one class of order-givers and another of order-takers. This creates a system of obedience and control: those who receive orders are expected to obey, and the order-givers must ensure compliance. The major loss in such a system is the atrophy of the workers' sense of responsibility, which often leads to lack of initiative and innovation.

To overcome the disadvantages of the traditional command-and-control system, Follett recommended the "law of situation," where orders are depersonalized. This allows for reasonable people to come to an agreement about who needed to do what to achieve the best possible results.[44]

Follett has thus emerged as the first modern management thinker who proposed a mode of organization that could serve as an alternative to the traditional bureaucratic hierarchy.[45] Her theories are especially relevant today as new technologies may be rendering Industrial Age organizational models obsolete. Similar ideas flourished in the 1950s and 1960s with Douglas McGregor's participative management, and later in the 1970s when job enrichment, workplace democracy and quality of work life were favorably received. But, despite her early contributions, Follett's legacy has gone largely unrecognized.[46]

Bureaucracy - A Closer Look

Government agencies represent the worst of all bureaucratic combinations. Each agency is organized as a bureaucracy and given some form of regulatory monopoly. The unfortunate results are evident everywhere. Government employees are blamed for inefficiency, ineffectiveness, non-responsiveness, and other such failures.[47] Yet they themselves are victims of a poor organizational model. The citizens get poor outcomes from their tax investments, and they blame it on politicians or people in government. Politicians do their best to bring about meaningful change, yet government workers trapped in a moribund bureaucracy are often defeated before their efforts begin. It is time to recognize the real villain, the bureaucratic organizational model.[48]

Max Weber did comparable economic and social damage by idealizing bureaucracy as Marx and Lenin did by attacking capitalism and promoting communism. Bureaucracy and communism are two organizational models that sound great in theory and on paper, but they do not always produce sound results. Bureaucracy has killed communism and has socialism in a death grip.[49] Bureaucracy is suffocating and immobilizing every capitalistic organization that adopts its false promises.[50] It indeed threatens the Department of Defense as we move into the twenty-first century.

Kenneth Johnston's Busting Bureaucracy cites the six prominent characteristics of bureaucratic organization:

- formal hierarchical structure
- management by rules
- organization by functional specialty
- an up-focused or in-focused mission
- imposed impersonality
- employment based on technical qualifications with protection from arbitrary dismissal

C. Northcote Parkinson added a seventh characteristic commonly referred to as "Parkinson's Law," which claims that the management and professional staff of a bureaucracy tend to grow at predictable rates, almost without regard to what the line organization is doing.[51] Staff growth continues regardless of the organization and generally at alarming rates. Johnston observed that top-management tends to think that good management involves keeping the line organizations as small as possible and will apply pressure from the top down to shrink from the bottom—top heavy, bottom lean.[52]

As the U.S. transitioned from an agrarian society to an industrial society, management concentrated its control over less educated workers. The bureaucratic organizing model offered many advantages. Hierarchical authority promised control and responsibility. Rules assured that the organizational structure controlled solely by top management allowed for no arbitrary decisions or judgments. Introduction of new or innovative ideas into the operations simply would not happen.[53] Consistency was key at the time, because the world prior to the industrial revolution was marked by inconsistency and discrimination. Certain people were also given advantage over others because of wealth and class. Although people were treated very differently from one another, consistency was the ultimate goal.

Mission specifies what an organization is to accomplish in business, the reason it exists. The up-focused mission ensures that a government agency will not end up serving the people in the agency, nor will it end up serving the people outside the agency. Instead, it would serve the government - all the people.[54] Corporations, on the other hand, would serve the stockholders, represented by the board of directors, rather than the people inside the organization. Peter Drucker is perhaps the best known analyst to point out that the only legitimate mission of an organization is to attract and satisfy customers, in other words, a customer-focused mission.[55]

Prior to the twentieth century, people were generally given responsibility for managing most often because of wealth, class or family. Specialization promised accountability, control and expertise. If specialists were in charge of each function of the organization, top management could be reasonably certain that the people handling the function were expert in the area.[56]

Impersonality promised, through the bureaucratic model, that each person or customer would be treated no better or worse than another. By treating people identically, an organization could ensure consistency and fairness. In an era where government tended to be controlled or dominated by those with money, power or position, employment based on technical qualifications promised equal opportunity.[57] Job security was nonexistent in the early twentieth century; workers were arbitrarily dismissed if they offended the wrong people. Thus job security and protection of employees' "right to work" came to be highly desired.

Did the bureaucratic organization model deliver on its promises? According to Kenneth Johnson, "Inside the organization, employees live with some very negative by-products of the bureaucratic form."[58] Often within an organization, control turns out to be an illusion: Each department has its own agenda, and departments don't cooperate to help other departments get the job done. Top management can and does influence the organization to "not do" certain kinds of things, but often finds it difficult to make worthwhile things happen. The head of the department feels responsible first for protecting the department, its people and its budget—even before helping to achieve the organization's mission.[59] This is commonly referred to as protecting "rice bowls."

Factional tactics or politics thrive in the bureaucratic organization. Political in-fighting occurs as executives strive for personal advancement and power. Change becomes difficult, if not impossible, because ideas are squashed or discounted depending on the originating source. If the idea is originated from the wrong person, it is questioned. But the same idea is easily supported if it comes from the "in the know" person. Trust does not abound in this culture and information is withheld and used as a basis for power.

Personalities often override technical expertise. Promotions are more likely to be made on the basis of politics, rather than on actual achievements or accomplishments on the job. Senior managers become so insulated from the realities of the front line that they may use stereotypical thinking and out-of-date experience in making decisions. Decisions are often made on the perceived desires of superiors, rather than on overall mission goals.[60] Decisions are often made by large groups so that no one person can be held accountable.

In many cases, people spend considerable time protecting their turf in an environment charged with unhealthy stress. Internal communication to employees is distorted to reflect what the organization would like to be, rather than what the organization really is. Data is used selectively, or distorted to make performance look better than it is.

The bureaucratic organization likewise makes strong impressions on its customers. Kenneth Johnston bases his insights on 19 years of interviews. From customers' perspectives, rigid policies and procedures come across as "red tape." Customers report rare exceptions to policy, lack of access, and unwillingness of bureaucratic organizations to admit mistakes. When customers are asked what it means to be bureaucratic, they often mention "slow to innovate" and "reluctant to change." Interestingly, once an organization is characterized in this way, customers tend to believe that the organization has inferior products and services.[61]

Some bureaucracies have long been suspect. Yet they remain our most prevalent organizational model as we enter the Information Age.

The Strategic Link

"Organizational structure is an information transfer system designed to service groups or individuals to permit the completion of the tasks and missions of the organization."[62] Until widespread use of computers and networks, an organization's structure provided the channel through which information flowed.[63] Today in the Department of Defense, we are experiencing information transfer systems in conflict: organizational hierarchy bypassed by computer networks, perhaps rendered obsolescent by them.

Enabled by computer networking, information-sharing has transformed every aspect of our lives and made many of the organizational notions of the past obsolete. "Throughout the industrial era it was possible for the organization to absorb each new wave of mechanical technology. Yet as wave after wave of computer technology beats against our traditional ways of doing things, we find ourselves in the backwaters of confusion and uncertainty."[64]

This transformation requires a new approach to our thinking about organizations. "Simply to computerize old ways of doing business, is as counterproductive as were early auto makers' efforts to design their wholly new machines as 'horseless carriages'."[65] Too often, current discussions of new structures seem unaware of how information technology will shape them. How often do you hear someone recommend flattening the organization today?

What is needed is an understanding of what I refer to as the strategic link—the inseparable union of organizational structure and the information sharing enablers of Information Age technologies. This strategic link does not dictate any given best organizational design. However, organizational structure and information enablers must be viewed holistically. Too many organizations add new technology without changing the mindsets firmly molded by the industrial-age structure.

> Communication within hierarchies is, by definition, "confusingly complex" because of all the little kingdoms through which one must go to resolve an issue. Automating and computerizing existing organizations, with all their distrust, petty politics, and disjointedness, only makes the mess faster, not better.[66]

In the 1980s, the Department of Defense began integrating computers into worksites, replacing typewriters on most desks. Just last year, I observed a government worker still using an IBM typewriter to complete government forms required in his job. Stand-alone machines increased document production within the bureaucracy because corrections could be accomplished quickly and easily with the new technology. Bureaucrats often increased the size of routine documents to take advantage of this new tool.

The Clinton Administration initiated a "new openness in government" with the National Performance Review that required the Department of Defense to make more information available to the public. At the same time the internet was evolving, DoD web pages proliferated. This new accessibility to information on the web helped Defense Department employees and other government employees gain access to resources that were otherwise buried deep in the bureaucracy. Information soon became readily available outside hierarchical channels.

Senior DoD executives reluctantly accepted these changes (having no other alternatives), often missing powerful opportunities for increasing information sharing among people by not establishing intranets within their own organizations. Many senior executives in government are still very uncomfortable with information technology. Senior leaders unable to embrace this powerful enabler will find their strategic vision obscured.

It is interesting to note that current management literature offers a variety of organizational variations for the new "knowledge era." Unfortunately, to consider adopting a new organizational form without strategically linking in the technologies of the Information Age is shortsighted. "It is not enough to envision the dream organization of the future, because the legacy of past assumptions, attitudes and decisions will turn future dreams into nightmares."[67] Organizational structure and information technology are inseparable in the twenty-first century; they must be viewed as inextricably intertwined. According to Tom Peters, "we need to reflect on the infrastructure of meaning, models and metaphors that undergird our organizations and turn them into vibrant communities."[68] DoD strategic leaders must examine the organization in a completely new way with a better understanding of the link between how the organization looks and the enabling information technology that allows its people to "think together." This strategic link is currently missing in the DoD. The direct conflict between the current "information as power" bureaucracy and "information sharing" enablers created by expanding networks is causing increased turmoil. This internal turbulence severely limits our ability to plan for the future.

Future Environment

"We are moving towards a world system composed of units densely interrelated like the neurons in the brain rather than organized like the departments of a bureaucracy," observes Alvin Toffler.[69] As we approach the next century, we will move into a dynamic environment marked by rapid scientific change. Technological advances will exceed all conceivable expectations. People will interrelate as never before.

> The information revolution is creating global links on a scale unparalleled in human history, tearing down petty, parochial interests while creating a global culture. The information revolution is building and forging a common planetary culture out of thousands of smaller ones.[70]

DoD organizations that remain rooted in hierarchical bureaucracy will be at a severe disadvantage in this new world environment. Opportunities created by scientific and technological advances will be overlooked; realtime ideas become bogged down in organizational layers. Factional thinking embodied in the hierarchy, wherein everyone has narrowly defined and mutually exclusive areas of responsibility,[71] will distort strategic vision. A plethora of oversight functions and new agencies to address changing issues will emerge as agency directors sense a loss of control. In his most recent work, Thickening Government: Federal Hierarchy and the Diffusion of Authority, Paul Light concludes that such "thickening" of U.S. government bureaucracies is all but inevitable. It has continued for more than 50 years, leaving government organizations increasingly incapable of achieving accountability or responsiveness.[72]

The National Security environment of the twenty-first century will be multi-dimensional and extremely unpredictable. The defense organization of the future must be flexible, responsive, and integrated to respond effectively to the complexity and uncertainty of this environment. Effective leaders will derive useful knowledge from complex interactions, disdaining the fragmented stovepipes of earlier times.

Frederick Taylor's theory of scientific management stresses the value of certainty and predictability. Taylorian organizations bounce around in response to changes in the environment; they don't initiate change.[73] Finely tuned bureaucracies with carefully defined policies, procedures, and job descriptions will be no match for the environment in the next millenium.[74]

"In the twenty-first century, brainpower and imagination, invention and the organization of new technologies are the key strategic ingredients," according to Lester C. Thurow, former dean of MIT's Sloan School of Management.[75] Should we place all of our trust for planning future organizational structure in the National Performance Review and the Defense Reform Initiative? Do these two studies adequately position DoD to operate with strategic effectiveness in the Information Age?

Conclusion

In The Tides of Reform: Making Government Work 1945-1995, Paul Light argues that with the highest level executives ever more insulated, it has been very easy to initiate reforms but almost impossible to implement or sustain them. In a bureaucracy, reform invariably creates new positions for people to manage or oversee the reform.[76]

We are at a critical turning point in the DoD. Many senior executives are allowing advances in technology to drive change in their organization without questioning the wisdom of such change. Engineers and other technical personnel, rather than strategic leaders, are in a unique position of setting the organization's strategic direction by introducing these new technologies. Seldom are discussions conducted on the interrelationships between new technologies and older organizational structures. Many non-engineering executives tighten their grips on all aspects of current processes, hoping to postpone or slow the pace of change. Unfortunately, organizations that allow only technology to drive change are always playing catch-up, and they drag along unneeded and wasteful process baggage. Further, bureaucracies are too confining and rigid, always out of alignment with the market.[77]

According to one senior military officer, "Email is evil." When asked to elaborate on this denunciation, the officer told of a two-star general who opened up channels of communication at all levels by encouraging employees to send problems electronically to him. When the General received these problems directly from employees throughout the organization he sent directives to subordinate supervisors. The problem was two-fold:

- He reacted immediately as if all messages were indisputably valid.
- He did not get all the pertinent facts or input from his subordinate leaders.

Consequently, his subordinate leaders spent a considerable amount of time responding to his reactive Emails.

On the other hand, another senior military officer working in the DoD laments the failure of the hierarchy to employ the coordinating capabilities of information technology. In this organization, actions required the staffing of paper copies through multiple echelons to the decisionmaker, with each echelon usually editing or rewriting portions on the hard copy, which then had to be reentered before a fresh paper copy would be forwarded to the next level. This senior officer then asked, "Why can't these types of actions be coordinated electronically to reduce the timeline and amount of scut work?" Both of these examples pertain to information technology used within the same old hierarchy, even though one method reduced menial work while the other creates additional problems. Neither example indicates any organization awareness of the tension between the new technology and the old organizational structure.

We can no longer afford to look at organizational structure and information technology separately. What's needed is an integration of the two—the strategic linkage. Too many systems rooted in the bureaucratic hierarchy are currently working against the structural changes needed in DoD. Even when some strategic leaders see the benefits of integrating information technology, they rarely have the autonomy to create the desired structural union and rise above many overarching bureaucratic systems.

For example, consider an organizational leader who sees the benefit of cross-functional groups networked for information sharing and increased collaboration. The leader's efforts will be thwarted by rules, regulations, and command-and-control mechanisms built into the hierarchy. "Layers of control are very expensive. …the cost of the central control structure is roughly $35 billion annually. About one in three federal employees provide management control."[78] When a person enabled by technology can work individually and collectively from any place, the implications for the organization are massive. Huge monolithic buildings containing centralized organizational structures, like the Pentagon, will not retain their traditional significance in an unpredictable global age, which requires instantaneous information-sharing and unlimited flexibility.

Without fully resourcing organizational autonomy for strategic leaders, initiatives to create flexible business-based DoD organizations will flounder. Many organizations, to appear in compliance with DoD initiatives for change, play a resource shell game. The resulting illusion of change prevents real preparation for the next century. Valid cost savings, effective customer-focused service, and knowledge-sharing contributions go unrealized. When technology enablers are merely added to outdated structures, workers respond with skepticism. New organizations are beginning to proliferate within the DoD. Often it is considered easier to stand-up a completely new organization than to redirect the focus of an existing organization within the bureaucracy. Turf battles ensue. Leaders, in turn, are continually reacting, rather than leading change. This then ineffectually creates an unsettled and unproductive workplace. Increasingly, large hierarchical organizations are unpredictable. Understanding the intrinsic relationship between organizational structure and enabling technology, and designing change accordingly, will enable DoD to achieve organizational robustness as the Information Age progresses.

Word Count: 5826

ENDNOTES

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